

DISTRICT I

P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II

811 South First St., Artesia, NM 88210-2835

DISTRICT III

1000 Rio Brazos Rd, Aztec, NM 87410-1693

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

2040 S. Pacheco
Santa Fe, New Mexico 87505-6429Form C-107-A
New 3-12-96

APPROVAL PROCESS:

☒ Administrative ☐ Hearing

EXISTING WELLBORE

☒ YES ☐ NO

APPLICATION FOR DOWNHOLE COMMINGLING

Operator Phillips Petroleum Company

5525 Hwy. 64, Farmington, NM 87401

Address

Lease San Juan 29-6 Unit #77

H., Sec. 22, T29N, R6W;

Rio Arriba, NM

Well No.

Unit Ltr. - Sec - Twp - Rge

County

OGRID NO. 017654 Property Code 009257 API NO. 30-039-07581

Spacing Unit Lease Types: (check 1 or more)

Federal ☒ State ☐ (and/or) Fee ☐

The following facts are submitted in support of downhole commingling:	Upper Zone	Intermediate Zone	Lower Zone
1. Pool Name and Pool Code	72319 Blanco Mesaverde		71599 Basin Dakota
2. Top and Bottom of Pay Section (Perforations)	5,115' - 5,625'		7,620' - 7,777'
3. Type of production (Oil or Gas)	Gas		Gas
4. Method of Production (Flowing or Artificial Lift)	flowing		flowing
5. Bottomhole Pressure Oil Zones - Artificial Lift: Gas & Oil - Flowing: All Gas Zones: Estimated Current Measured Current Estimated Or Measured Original	a. (Current) 750 psi (est.) b. (Original) 1280 psi (est.)	RECEIVED NOV 12 1999 OIL FIELD DIV.	a. 1273 psi (24 hr SI) b. 3,130 psi (est.)
6. Oil Gravity (°API) or Gas BTU Content	1150 btu/scf		1015 btu/scf
7. Producing or Shut-In?			Shut-in
Production Marginal? (yes or no)			
* If Shut-In, give date and oil/gas/water rates of last production Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data	Date: Rates: 350 mcf/d (est.)	Date: Rates:	Date: 3/31/99 Rates: 59 mcf/d, 1 bwpd
* If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date: Rates:	Date: Rates:	Date: Rates:
8. Fixed Percentage Allocation Formula - % for each zone	Oil: % Gas: %	Oil: % Gas: %	Oil: % Gas: %

9. If allocation formula is based upon something other than current or past production, or is based upon some other method, submit attachments with supporting data and/or explaining method and providing rate projections or other required data.

10. Are all working, overriding, and royalty interests identical in all commingled zones?

If not, have all working, overriding, and royalty interests been notified by certified mail?

☐ Yes ☒ No

Have all offset operators been given written notice of the proposed downhole commingling?

☒ Yes ☐ No

11. Will cross-flow occur? ☐ Yes ☒ No If yes, are fluids compatible, will the formations not be damaged, will any cross-flowed production be recovered, and will the allocation formula be reliable. ☐ Yes ☐ No (If No, attach explanation)

12. Are all produced fluids from all commingled zones compatible with each other? ☒ Yes ☐ No

13. Will the value of production be decreased by commingling? ☐ Yes ☒ No (If Yes, attach explanation)

14. If this well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. ☐ Yes ☐ No

15. NMOC Reference Cases for Rule 303(D) Exceptions:

ORDER NO(S) R-11187

16. ATTACHMENTS:

- * C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- * Production curve for each zone for at least one year. (If not available, attach explanation.)
- * For zones with no production history, estimated production rates and supporting data.
- * Data to support allocation method or formula.
- * Notification list of all offset operators.
- * Notification list of working, overriding, and royalty interests for uncommon interest cases.
- * Any additional statements, data, or documents required to support commingling.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

Mark Stodola

TITLE

Reservoir Engr.

DATE

11/9/99

TYPE OR PRINT NAME

Mark Stodola

TELEPHONE NO. (

505-599-3455



PHILLIPS PETROLEUM COMPANY

FARMINGTON, NEW MEXICO 87401
5525 HWY. 64 NBU 3004

November 9, 1999

New Mexico Oil & Gas Conservation Div.
2040 South Pacheco
Santa Fe, New Mexico 87505-6429

Downhole Commingling Allocation Method
On the San Juan 29-6 Unit #77

Dear Sirs:

Phillips Petroleum is proposing to utilize the subtraction method on the subject well for approximately twelve months after actual commingling occurs. After the 12th month period we will convert to the ratio method as indicated in our commingling application. We believe this will be a more accurate method of allocating production considering the Dakota interval has been producing for years and that the production will not be stabilized on the Mesaverde for several months.

Dakota Production Forecast

December 1999	1,547	January 2000	1,540
February 2000	1,386	March 2000	1,528
April 2000	1,472	May 2000	1,515
June 2000	1,460	July 2000	1,503
August 2000	1,496	September 2000	1,442
October 2000	1,484	November 2000	1,430

For example, if the total volume for December 1999 were 12,397 mcf, then the Dakota would be allocated 1,547 mcf and the Mesaverde 10,850 mcf. And subsequently, the Dakota would be allocated $(1,547/12,397)$ or 12.48% and the Mesaverde would be allocated $(10,850/12,397)$ or 87.52%.

Sincerely,

PHILLIPS PETROLEUM COMPANY

Mark Stodola
Reservoir Engineer

MS/pc

cc: OCD - Aztec
BLM - Farmington
NM Commissioner of Public Lands - Santa Fe

PHILLIPS PETROLEUM COMPANY
5525 HWY 64 NBU 3004
FARMINGTON, NEW MEXICO 87401

DATE: NOVEMBER 2, 1999

WELL NAME: SAN JUAN 29-6 # 77
FORMATION: DAKOTA

TYPE TEST: STATIC GRADIENT

COUNTY: RIO ARRIBA
STATE: NEW MEXICO

TOTAL DEPTH: PBTD @ 7793'
PERFS: 7620' TO 7777'
TUBING: 2 3/8 TO 7755'
CASING SIZE:
PACKER:
OTHER: PIN COLLAR @ 7724'
PRESSURED UP @ 12:00

CASING PRESSURE:
TUBING PRESSURE: 1080
OIL LEVEL:
WATER LEVEL:
TEMPERATURE:
ELEMENT NO. 86484
ELEMENT RANGE 0 TO 3000

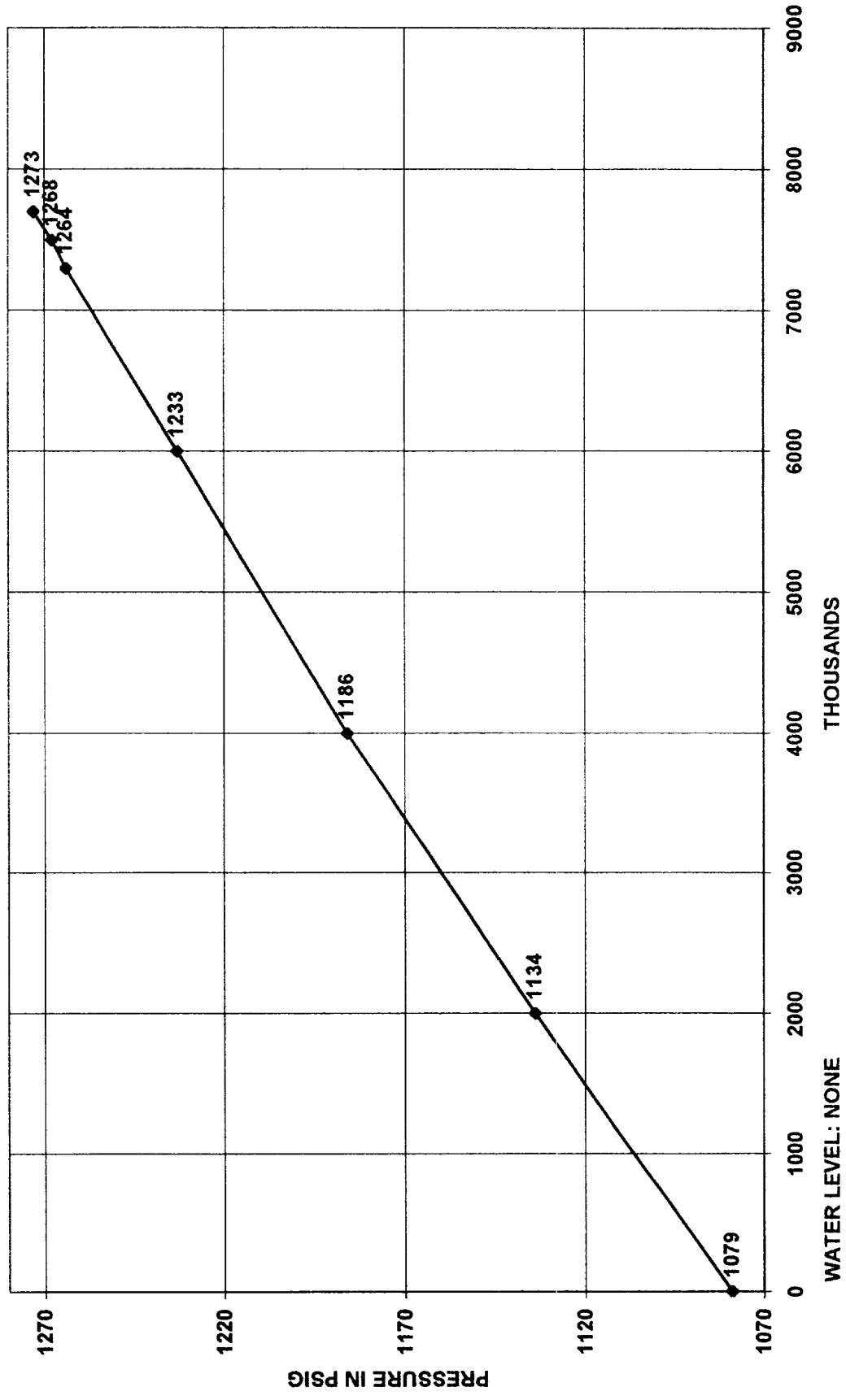
WELL STATUS: SHUT IN

DEPTH IN FEET	PRESSURE PSIG	GRADIENT PSI/FOOT
0	1079	
2000	1134	0.028
4000	1186	0.026
6000	1233	0.024
7299	1264	0.023
7499	1268	0.020
7699	1273	0.025

SLM @ 7704'

H & H WIRELINE SERVICE INC.
P. O. BOX 899
FLORA VISTA, NEW MEXICO 87415
OPERATOR: CHARLES HUGHES
UNIT NO. T-11

PHILLIPS PETROLEUM SAN JUAN 29-6 # 77
DATE: NOVEMBER 2, 1999

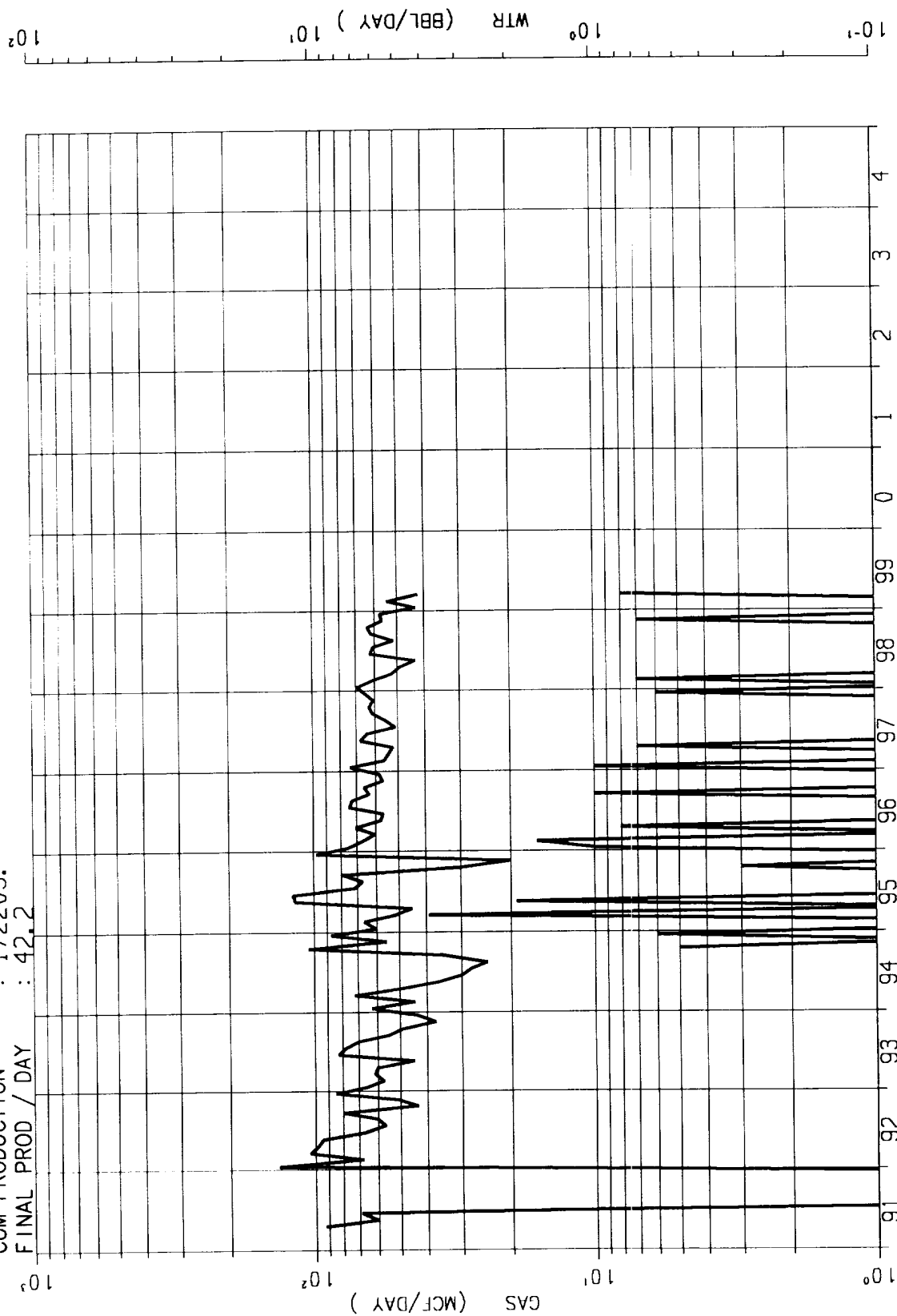


4/91-3/99

INITIAL PROD / DAY : 92.7
REMAINING LIFE : 8.00
0.00

CUM PRODUCTION : 172209.
FINAL PROD / DAY : 42.2

ASSOC. Current Cums
172209. MCF GAS
489. BBL WTR



LEASE- 650299 : SAN JUAN 29-6 DAKOTA
RESVR- 076 : BASIN DAKOTA
WELL - 000077 CUM MCF =897413.

F056901
ZONE-650299076000077 F056901
API-30039075810000 THRU 99/03

MEP81-01

PARPI - WELLZONE PRODUCTION BROWSE

Date: 11/05/99

MONTHLY TOTALS

User: MWSTODO

Wellzone F0569 01 Yr: 1998 Mth: 09 Property: 650299 SAN JUAN 29-6 DAKOTA

Screen: 1 (1-Prod, 2-Inj, 3-Both) Well No: 000077

Type: T (T-Total, D-Daily Avg) Field: 042233 BASIN

Period: M (M-Mnthly, Y-Yrly, C-Cum) Resvr: 20076 DAKOTA

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-----
ADJ          ----- PRODUCED ----- DAYS ----- - WELL -
FLG DATE      OIL (BBL)      GAS (MCF)      WATER (BBL)      PROD      OP ST CL TY
1998-09          0.00          1,857          0          30.00      30 11 03 2
1998-10          0.00          1,966          0          31.00      31 11 03 2
* 1998-11          0.00          1,701          20          30.00      30 11 03 2
1998-12          0.00          1,777          0          31.00      31 11 03 2
1999-01          0.00          1,334          0          31.00      31 11 03 2
* 1999-02          0.00          1,515          0          28.00      28 11 03 2
* 1999-03          0.00          1,309          25          22.00      22 11 03 2
* 1999-04          0.00              0              0           9.00       0 46 03 2
* 1999-05          0.00              0              0          17.00       0 46 03 2
* 1999-06          0.00              0              0          29.00       0 46 03 2
* 1999-07          0.00              0              0          30.00       0 46 03 2
* 1999-08          0.00              0              0          31.00       0 46 03 2

```

PA1=ICE PA2=Exit PF1=Help PF3=End PF5=INITIAL CUM PF11=GRAPH
 Transfer-> PF7=Backward PF8=Forward PF4=PREV SCREEN PF12=LOG GRAPH

MEP81-01

PARPI - WELLZONE PRODUCTION BROWSE

Date: 11/05/99

DAILY AVERAGE BY MONTH

User: MWSTODO

Wellzone F0569 01 Yr: 1998 Mth: 09 Property: 650299 SAN JUAN 29-6 DAKOTA

Screen: 1 (1-Prod, 2-Inj, 3-Both) Well No: 000077

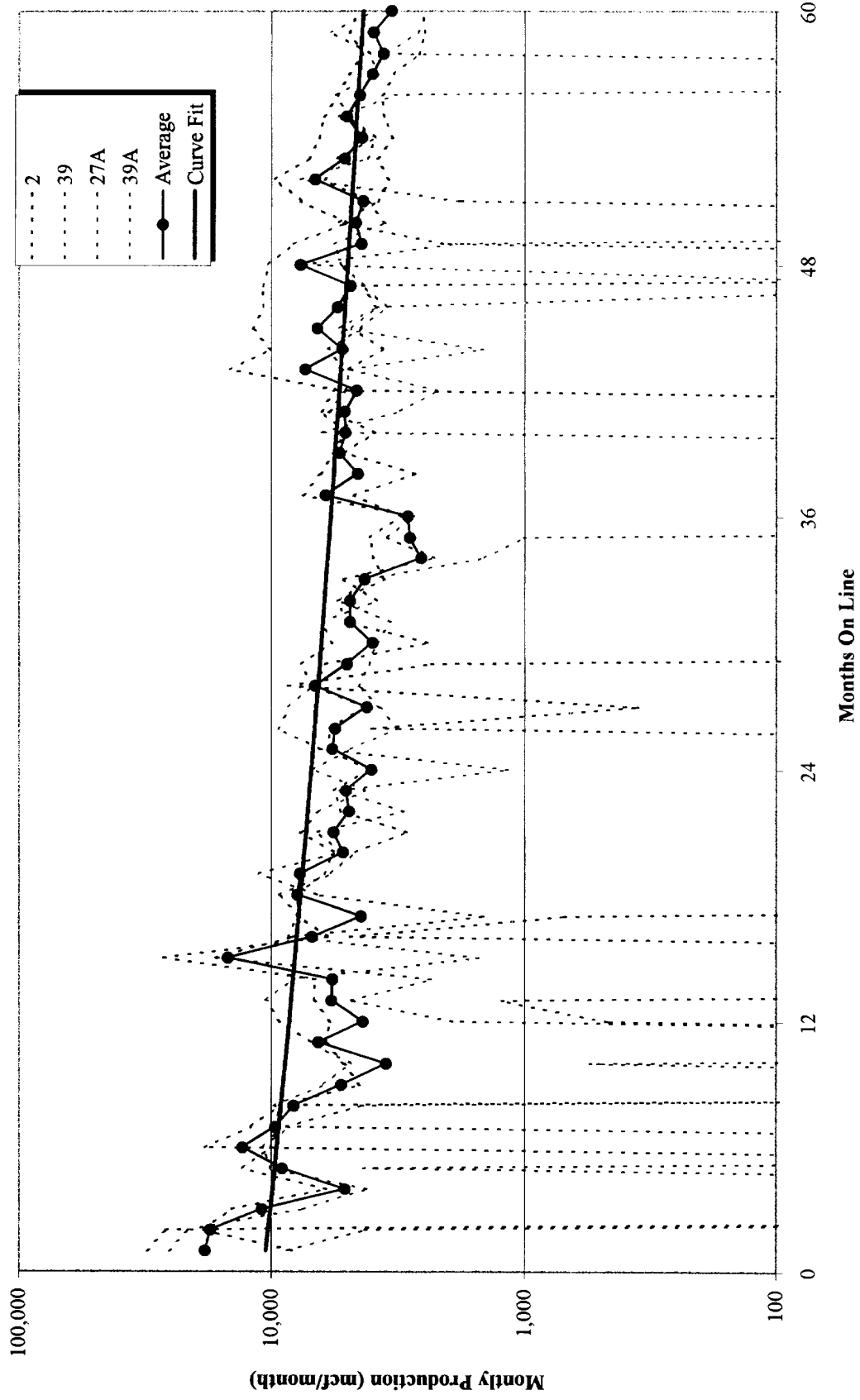
Type: D (T-Total, D-Daily Avg) Field: 042233 BASIN

Period: M (M-Mnthly, Y-Yrly, C-Cum) Resvr: 20076 DAKOTA

```
-----
ADJ          ----- PRODUCED ----- DAYS ----- WELL -
FLG DATE      OIL (BBL)    GAS (MCF)    WATER (BBL)    PROD    OP ST CL TY
1998-09        0.00         61           0       30.00    30 11 03 2
1998-10        0.00         63           0       31.00    31 11 03 2
* 1998-11      0.00         56           0       30.00    30 11 03 2
1998-12        0.00         57           0       31.00    31 11 03 2
1999-01        0.00         43           0       31.00    31 11 03 2
* 1999-02      0.00         54           0       28.00    28 11 03 2
* 1999-03      0.00         59           1       22.00    22 11 03 2
* 1999-04      0.00          0           0        9.00     0 46 03 2
* 1999-05      0.00          0           0       17.00     0 46 03 2
* 1999-06      0.00          0           0       29.00     0 46 03 2
* 1999-07      0.00          0           0       30.00     0 46 03 2
* 1999-08      0.00          0           0       31.00     0 46 03 2
```

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PA1=ICE    PA2=Exit  PF1=Help    PF3=End    PF5=INITIAL CUM  PF11=GRAPH
Transfer-> PF7=Backward PF8=Forward  PF4=PREV SCREEN PF12=LOG GRAPH
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San Juan 29-6 Unit Mesaverde Production Near the 29-6 #77



29-6 Unit #77 Dakota Forecast

<i>Initial Production Rate</i>	=	50 MCFD
<i>Hyperbolic Exponent</i>	=	0.33
<i>Decline Rate</i>	=	5 %

	Month	Monthly MCF
1999	Dec	1,547
2000	Jan	1,540
	Feb	1,386
	Mar	1,528
	Apr	1,472
	May	1,515
	Jun	1,460
	Jul	1,503
	Aug	1,496
	Sep	1,442
	Oct	1,484
	Nov	1,430
	Dec	1,472
2001	Jan	1,466
	Feb	1,319
	Mar	1,454
	Apr	1,402
	May	1,442

se subtraction method for +/- 12 months based on this Dakota forecast

Production Allocation Methodology

◆ Adding New Zone to Existing Zone - Initially Subtraction Method followed by Fixed Allocation Method

- Subtraction Method (+/- 12 months)
 - Forecast production rate by month for existing zone utilizing established decline curve for zone
 - Subtract forecasted rate from commingled rate to define new zone rate
 - Utilize subtraction method for +/- 12 months until new zone rate stabilizes, then utilize fixed allocation method with current rates
- Fixed Allocation Method (after Subtraction Method)
 - Utilize forecasted rate from established decline curve for lower zone
 - Calculate upper zone rate by subtracting lower zone rate from commingled rate
 - Lower zone allocation = $\frac{\text{Lower zone rate}}{\text{Commingled rate}}$
 - Upper zone allocation = $\frac{(\text{Commingled rate} - \text{Lower zone rate})}{\text{Commingled rate}}$